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WASHINGTON LETTER.

WASHINGTON, D. C., OCTOBER 12, 1898.

SURVEYS IN ALASKA.—Several of the parties of topographers and geologists who were in Alaska during the summer have returned to the United States, reaching Seattle early in October, and the remainder are expected to follow shortly. Mr. Edwin C. Barnard's party of 16 men, reaching Lake Bennett in April, spent nearly a month waiting for the ice to break. They finally arrived at the mouth of White River in June, leaving Mr. William J. Peters, topographer, and Mr. Alfred H. Brooks, geologist, who with 4 men turned up White River, mapping the country and making a geologic reconnaissance. This party found a low pass occupied by a wide marsh and leading to the headwaters of the Tanana. The three canoes were transported over this marsh and the trip down the Tanana was begun the latter part of July. Triangulation was carried along the banks of this river and the topography sketched until the prevailing smoke prevented further work of this character. Beyond this point stadia measurements were continued nearly to the Yukon. It was arranged to reach this latter point on the first of September, and it was found necessary to drop the stadia measurements and make a hasty circuit in order to reach the Yukon on the date set. A short time after reaching the mouth of the Tanana the party boarded one of the Yukon River steamers and arrived at St. Michael early in September. In the meantime, Mr. Barnard's party proceeded down the Yukon from the mouth of White River, and crossing the international boundary into Alaska, mapped a quadrangle, covering one degree of latitude and longitude. When this work was completed, Mr. Barnard proceeded down the river and reached St. Michael just in time to leave for Seattle with the first party.

Mr. Eldredge proceeded to Cook Inlet and up the Sushitna River with the intention of crossing a path to the Tanana, but owing to various unforeseen contingencies did not succeed in doing this. After making a thorough examination of the country and obtaining results of value, he returned southerly and took passage from Toyonak on Cook Inlet by the first available steamer, reaching Seattle on October 8. Mr. Spurr, who had left Mr. Eldredge's party with the intention of going westerly down the Kuskokwim River, succeeded in carrying out his plan, and reaching tide-water, sent three men across the portage to Yukon River and to St. Michael. He, with two others, took a sailing boat with the intention of coming southerly into Kuskokwim Bay and easterly to Bristol Bay and Iliamna Lake, with the object of reaching some port on Cook Inlet.

EXPLORATIONS IN THE SOUTHWEST.—Dr. J. Walter Fewkes, of the Bureau of American Ethnology, a branch of the Smithsonian Institution, has left to continue his studies of the Pueblo Indians of northeastern Arizona. In preceding years he has acquired a familiarity with the languages and customs, such that he has been admitted to various secret or semi-religious organizations among the Indians. By a careful study of their traditions he has been able to trace out the migrations of the Mokis and has identified the ruins of ancient towns. From these he has obtained a large and valuable collection of ancient pottery, implements, and other articles, which during the past year have been arranged and placed upon exhibition in the National Museum. In connection with this he has also prepared a series of papers which are being printed in the annual reports of the Bureau of Ethnology. The work now under way is intended to extend the knowledge already gained, particularly of the ceremonials which, while now practised, are being rapidly modified or outgrown.

INTEROCEANIC CANALS.—The Nicaragua Canal Commission, of which Admiral Walker is president, has returned to Washington and established offices in the city, where presumably the official report will be prepared for early presentation to Congress. Nearly all of the engineers and employés have been brought in from the field with the exception of two parties, one under the charge of Mr. Arthur P. Davis, continuing the study of the hydrography of the route traversed by the canal, and the other under Dr. C. Willard Hayes, making borings for sites for dams and studying the rock structure. The data being brought together and digested by these specialists are of a character that has been almost neglected in previous surveys, and yet are of such fundamental importance that all estimates must of necessity rest upon them. In the earlier reports various assumptions have been made as to the probable water supply and the possible character of the rock and earth, but from lack of precise data the points have been lightly touched upon, although involving the whole question of feasibility. It has, therefore, been the desire of the present Commission to give particular attention to these points in order that these great sources of uncertainty may be removed.

While the Nicaragua project has been attracting public attention the Panama scheme has been quietly investigated, and it is probable that about the time the report of Admiral Walker appears there will be an exhaustive discussion of the merits of the canal at Panama. The new Panama Canal Company, organized in October, 1894, has employed a technical commission consisting of French, English, German, Russian, and American engineers. These have made a thorough examination of the present condition of the Panama Canal and have prepared many elaborate alternative plans and estimates sufficient for the determination of the questions as to the method and cost of final completion. It is stated that about 40 per cent. of the whole length of the canal has been actually excavated. Many advantages are claimed for the Panama route over the Nicaragua, particularly in the fact that good ports already exist at each terminal of the former, while in the case of the latter they must be artificially prepared.

STATISTICAL ATLAS.—The Statistical Atlas of the United States, prepared by Henry Gannett, and based upon the results of the eleventh census, has been issued and is now being distributed. Work upon it was completed in June, 1896, but the preparation of elaborately colored maps and diagrams and various difficulties have operated to delay the final publication. These illustrations are accompanied by sufficient explanatory text to make the meaning clear, but it is surprising to note what a wide range of information is conveyed in an easily comprehensible form by graphic methods. The development of the country and the increase in population as a whole and by States is shown by a series of maps, and the original nationality, the migration of the people, their health, religion, occupation, and wealth, brought out by various color schemes. One of the most striking items is the distribution of the foreign-born population of the United States with reference to the countries from which these people came. Natives of the Germanic nations are shown by the maps to have concentrated around the western shores of Lake Michigan and in the country northwest of this, while the Scandinavians have gone still farther to the northwest into Minnesota and the eastern part of the Dakotas. The natives of Ireland, on the contrary, are found for the most part consolidated along the Atlantic Coast, in the southern New England States and New York, so much so that in Massachusetts, Rhode Island, and Connecticut the persons born in Ireland constitute nearly one-half of the foreign-born population. The inter-State migration is illustrated by a series of small maps which show by appropriate colors the other States, into which the natives of a particular State have gone. For example, beginning with Alabama, a glance at the map shows that most of the natives of Alabama, who have left that region, have gone to Mississippi and to a less extent to the adjacent States as far west as Texas, comparatively few going north. On the other hand, the natives of Connecticut have spread out westerly into Ohio and Illinois, and through the northern half of the United States to the Pacific Coast. The trend along parallels of latitude or lines of similar conditions of temperature is fairly well marked. The yield of various farm crops is elaborately discussed by maps, and following this the condition of manufacturing, as well as the wealth and indebtedness of the country. If fact, nearly every matter of importance to the country as a whole has been illustrated in its most striking form. Even a casual inspection of these maps and diagrams reveals many facts of interest or surprise, and a thorough study of them enriches the mind.

WESTERN NEBRASKA.—A copiously illustrated report upon the topography and geology of western Nebraska has been prepared by Mr. N. H. Darton, and is being printed in Part IV. of the Eighteenth Annual Report of the United States Geological Survey. This area being traversed by but few railroads has been little known. In many respects it is similar to western Kansas, but, as it lies well within the semi-arid or even the arid region of the country, it has not passed through the cycles of "booms" and depressions which have characterized its more southern neighbor. Settlement has progressed slowly, and, with the exception of the cattle ranches, has been confined mainly to the valleys of the North Platte, Niobrara, and White Rivers.

One of the most striking features of this country is the great area of sand hills. These have been considered almost, if not quite, worthless except for grazing purposes. The sand is in small hills, irregularly grouped, and rising to a height of 50 to 100 feet, or even more. The area capped by them is estimated at 24,000 square miles, or three times the extent of the State of Massachusetts. The hills and ridges are irregularly scattered over the surface, often so closely grouped as to encroach upon each other. For the most part they are moving slowly toward· the southeast as the sand is blown forward by the prevailing winds. The surface is usually covered with a somewhat scanty herbage, retarding the drifting of the sand. Many of the grasses furnish excellent forage, and large herds of cattle find sustenance in this part of the State. On some of the higher or more exposed hills the winds have been able to break through the covering of vegetation and, getting at the soft sand, to dig this out, forming what are locally known as "blow-outs." These blow-outs rapidly eat their way forward, the sand being transferred from the steep face up over the top of the ridge and deposited in gentle slopes to the leeward.

The rain falling upon the sand-hill area sinks in immediately and cannot establish drainage lines. Penetrating downward and laterally it saturates the lower layers of the sand where these rest upon comparatively impervious clays. The water plain thus formed occasionally rises so high as to result in small ponds or pools in the deeper valleys among the hills. In many places water can be obtained by merely scooping out the sands of the lowlands. Although the soil is so light, yet recent experience has shown that crops can be raised. By applying some of the water which can be pumped from beneath the surface, gardens or small farms have proved remunerative. Thus the sand-hill region, once classed as desert, has been found to possess many resources which can be turned to advantage.

THE BAD LANDS.—During the past summer the examination and study of the Bad Lands east of the Black Hills has been carried on. In spite of their name the Bad Lands of South Dakota are among the most attractive of the scenic features of the West. They have been little known and rarely visited except by collectors for museums—or 'bone hunters," as they are commonly known. These lands owe their origin to the existence of thick deposits of sand and clay, of comparatively recent origin geologically, and having a relative hardness such that they are eroded with extraordinary rapidity by the occasional showers of the arid region. Beds of similar character and age, if situated in a humid area, would have been washed away centuries ago, but in a dry country, where the drought is broken only by downpours at long intervals, these beds have been cut into the most fanciful forms. They lie almost horizontal and on top present the aspect of grass-covered flats, being portions originally of an extensive prairie. In driving along on top of these remnants a person has the impression that he is upon a great plain stretching to the horizon. Suddenly, however, and almost without warning, he reaches the edge of a great cañon opening at his feet to a depth of several hundred feet, and with walls most beautifully sculptured with buttresses and pinnacles. At the bottom is a nearly level valley, beginning abruptly at the foot of the cliff and without the usual talus slope. This latter feature is one of the most surprising in the erosion of the country. The soft sands and clays when broken down are apparently carried off immediately and the lower plain—that of the valley—is continued to the very bottom of the cliff, which rises to the ancient and disappearing plain. Between the two are the almost vertical walls, which can be climbed in only a few places. Across the Bad Lands trails and roads have been made by the Indians, so that following these a person may drive or ride a bicycle, the path extending either along the valleys or on the upper plain. If on the latter, he may pass through the Bad Lands almost without seeing their wonders, as his eye rests mainly upon remnants of the old surface. In attempting, however, to go across out of the beaten tracks, progress is soon found to be blocked by the abrupt cliffs and, should the traveler succeed in climbing in and out of one of these cañons, he would usually find others blocking his progress in the most bewildering fashion, so that he may travel across or around the head of these for hours and make little onward distance.

In the walls exposed by erosion are to be found the remains of gigantic land animals and of turtles. The latter are to be seen almost everywhere, some of great size, two feet or even more in diameter. Occasionally a turtle shell is found capping a low pillar formed by the harder shell protecting the soft rock under it from erosion. The great massive bones and teeth of the *titanotherium* are common, and in the higher beds those of the small and apparently graceful *oreodon*, one of the predecessors of the modern horse. The teeth and other parts of carnivorous animals are also found and the great variety of well-preserved bones has attracted the attention of collectors for museums, so that through the labors of Marsh, Owen, and Cope, the region has been known as a rich field for the palæontologist, rather than for the attractions which appeal to the ordinary tourist or traveller. Access to the region is comparatively easy from the railroad stations to the east of the Black Hills, and the roads are for the most part excellent. The superb climate and wonderful views must in the future attract the seeker for the novel or the beautiful, especially when the results of the surveys now being conducted are available for general use.

SOUTHERN UTE RESERVATION.—In the Act making appropriation for the expenses of the Indian Department, approved on July 1, 1898, it is provided that the Secretary of the Interior shall make an investigation as to the practicability of providing a water supply for irrigation purposes on a portion of the Reservation of the Southern Utes. This tract of country lies in the extreme southwestern corner of the State of Colorado, draining into Mancos River, which in turn flows into the San Juan River, a tributary of the Colorado River of the West. An expenditure of upwards of $150,000 was authorized for the purchase of water, if it can be had from some company already in existence. The carrying out of the terms of this Act will mark a notable advance not only in the development of the resources of the West, but in the settlement and partial civilization of some of the Indians regarded as least amenable to the customs of white men.

The occupants of the Reservation are known collectively as "Southern Utes" as distinguished from the Uncompahgre Utes and others of northern Utah. They consist of remnants of tribes known as the Kapoti, Muachi, and Wiminuchi Utes. In numbers they aggregate about 1,100, of whom about 400 nominally have permanent homes or allotments upon which they are supposed to live. The remainder have homes temporary in character and spend much of their time wandering over the Reservation, or on the neighboring mountains and desert plains. The total area of the Reservation is over one million acres, some of the land being of high fertility and capable of producing large crops if water can be had for irrigation.

Much of the Reservation, however, lies within the great mesa land, deeply dissected by the Mancos River and its tributaries. In the edges of the cañons thus formed are the wonderful cliff houses, and scattered through the valleys and over the high tablelands are innumerable ruins of houses and towns of unknown antiquity. It is almost impossible in this part of the country to find an acre or even a square rod of ground upon which there is not some bit of ancient pottery, or fragment of dressed stone, or other indication of the former presence of a considerable population. The Indians now occupying the country are totally ignorant of their predecessors, although recognizing the fact that people of a higher order of manual skill at one time inhabited these ruins. Fortunately the Utes, as well as the Navajoes and other tribes, have a respect, or more properly a superstitious dread, for the cliff houses, and, unless accompanied by white men, cannot be induced to approach them. It is related that an Indian guide, one who had been to school and could talk English, piloted a party of explorers to one of the largest ruins. While he was absent on some errand the white men discovered a mummy of one of the former residents of the town, and bringing it down from the cliff, set it against the waggon. Upon returning, the Indian, coming unexpectedly upon the mummy, started back in fright, leapt on his pony and was last seen in a cloud of dust on the far horizon, never returning for his pay or personal belongings. This fear has operated to preserve these ruins for hundreds of years or until the advent of the cowboy and occasional tourist, the destruction wrought during the last decade being greater than that of many centuries.

It is obvious that the climate of this part of the country was probably no less arid in former times than at present, and that the people who built the houses now in ruins must have subsisted largely by agriculture, as there is no evidence that game was particularly abundant. The remains of corn and other cereals in the ancient villages show that these must have been cultivated, and there are not only traces of ancient irrigation ditches, but indications that some of the steeper hillsides were laboriously terraced and presumably highly cultivated. In other words, a large population lived in apparent comfort, where now a few Utes seem to be in danger of starvation. If these latter can be induced to practice some of the arts of their predecessors, there is every reason to believe that they will become self-supporting, thus relieving the Government from the necessity of doling out at regular intervals flour, bacon, and other provisions. To induce a people who have been pauperized by the issuing of rations to work and think for themselves is a difficult task, and one requiring that every possible facility be used. The small economies and careful conservation of moisture, which the ancient people evidently practised, do not at this time seem to be feasible, and therefore the Government has determined to provide an ample supply of water and to make the start of the Southern Utes on the road to civilization as easy as possible.

On the eastern end of what was formerly the reservation is a comparatively good supply of water from small streams flowing southerly from the La Plata Mountains. Here in the vicinity of Ignacio the Government has built a number of irrigating ditches and has, through the efficiency of the former Indian Agent, David F. Day, succeeded in inducing a number of Utes to cultivate their farms, the work being under the advice or supervision of an active farmer. The remaining members of the tribe have, however, refused again and again to take land in allotments and have held out against persuasion and inducements offered. They see no reason why they should work for themselves when the Government has agreed to support them and their children, and in this they have been advised by the neighboring whites, for whose interest it has been not to permit the Indian to become a citizen and self-supporting individual. The efforts of the Government to better the condition of such tribes, not only against their natural inclinations, but also against the active opposition of the white neighbors, must be of the most vigorous character in order to make a decided change in the existing conditions.

The Southern Utes at the present time have little property beyond a few personal adornments and a small band of sheep. They own, unfortunately, a good many worthless horses, whose only use is to transport them from point to point, facilitating their restless wandering in the visits made by one family upon another, or upon distant tribes. If they did not have these it is probable that they would be more inclined to stay at home and to accumulate personal possessions, but, mounted on their ponies, a man with his wife and children will start off on a journey of several hundred miles to visit some distant relative or acquaintance, staying until the food supply of the person visited is exhausted, and then visiting in turn others, and finally coming back to the recognized family home, in which, however, but a few weeks of the year may be spent. Formerly the tribe, or small bands comprising the tribe, owned considerable numbers of cattle and sheep, but mismanagement on the part of the Indians and of various agents and authorities resulted in the loss of the cattle and most of the sheep, the horses alone being left.

The Indian customs are against the accumulation even of horses, for although these people, unlike many tribes, will not eat horse flesh, many horses are killed upon the death of some prominent chief or other individual. During this last summer one of the head men was very sick and his relatives began to kill his horses, fifteen being slaughtered before it was discovered that he showed signs of recovery. These horses were thus, even according to the Indian's belief, needlessly destroyed and did not enure to the chief's benefit in the next world even when he did die. Delicate questions of ethics have been brought up for the decision of the Indian agents on occasions such as these, as, for example, when sheep are killed on the death of a chief, as to whether the hides can be sold. The final conclusion, as reached by counsel called for the purpose, was that the sheep should not be skinned, as a man in the spirit world would be ashamed to be seen by his friends herding a lot of sheep without their wool. The Indian is thus hesitating between his ancient beliefs and the obvious necessity of adopting the white man's way of looking at things. It is probable that if the surveys now being conducted upon and adjacent to the Reservation show that ample water can be had and the recommendations are carried out, one individual after another will probably try to raise a crop in the white man's fashion. But it is highly necessary that these first experiments should be successful, for failure at the start quickly discourages the Indian. When once the individual has broken away from his ideas of etiquette and hospitality, and has taken on the white man's covetousness and desire to own and possess personal property, it will be practicable to hold him to one spot of ground and put him in the way of becoming a citizen.

TWO ARID REGIONS.—At this time it is interesting to compare the arid regions of the Old World and their development with corresponding areas in the New, taking as an example Spain as a representative of the drier part of Europe and California as a corresponding example in our own country. The area of Spain in round numbers is 197,000 square miles, or about one-fourth larger than that of California, this being approximately 156,000 square miles. The population of Spain is about 17 million, while that of California, as shown by the census of 1890, is only a trifle over one and a fifth million, or about seven per cent. that of Spain, the density of population per square mile being respectively 90 and 8. The State of Ohio is in this respect comparable, it having an average of a little over 90 people for each square mile of its land surface.

If we should take the entire population of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York and New Jersey, and move all of these people into California, we would then have in that State an aggregate about equivalent in number to the total population of Spain. The point of comparison, however, is in the climate and the natural resources of the two areas. These have striking similarity, and if the old country can support such a great population it is to be inferred that with as fertile a soil, as favorable a climate, and as great mineral resources, the State of California may ultimately have not only a population numerically as great, but, due to better institutions, far higher intellectually. In both countries the rainfall of the greater part of the area ranges from 10 to 15 inches per year, in some portions amounting to 20 inches or even more. The more southern valleys have a semi-tropic climate favorable for the production of citrus fruits. The water supply is relatively small and sparsely distributed, and the rivers have less value for navigation than for use in filling the irrigation canals and ditches of the farmers. Both countries, though depending largely for their agriculture upon a continuous water supply, have suffered severely from the lack of suitable laws governing the distribution and use of water, and future developments are being crippled by the uncertainty regarding this form of property.

A recent report of the Department of Agriculture exhibits the source of the wealth of Spain resulting from exportation. The total annual exports from 1881 to 1895 have averaged about 150 million dollars. Of this amount the principal item was for wines, averaging about 30 million dollars per year; next to this were mineral ores, 15 million dollars; and metals, mainly copper and lead, 17 million dollars. Fruits and nuts, both fresh and dry, aggregate 13 million; olive oil over 3 million; and cork, mainly in the form of stoppers and boards, over 4 million dollars. Nearly all of the agricultural products which have really formed the foundation for the development of Spain's population can be grown with equal success in California or portions of Arizona, New Mexico, and adjacent States. The natural resources are there awaiting the wise treatment which may render them available to the largest number of future citizens. N.